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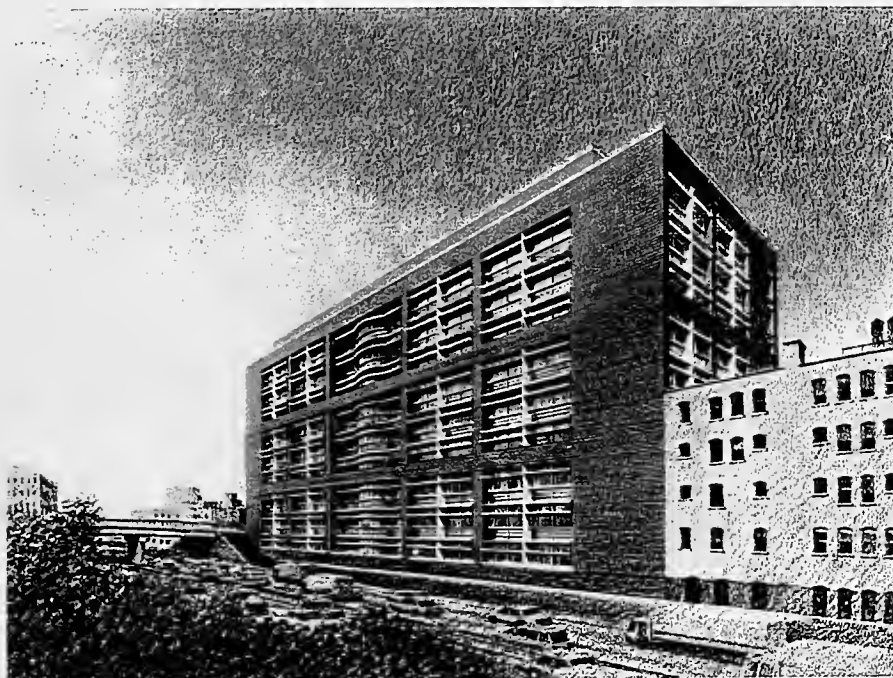
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**BOSTON UNIVERSITY
CENTER FOR PHOTONICS RESEARCH**

Project Notification Form



Submitted To:

Boston Redevelopment Authority

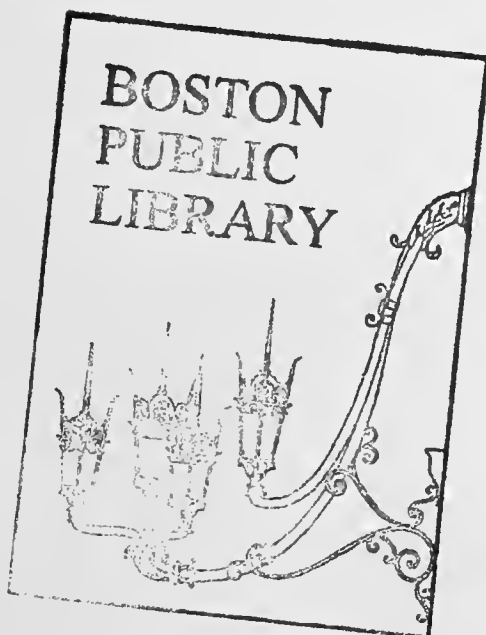
Proponent:

Trustees of Boston University

Prepared By:

Fort Point Associates
M/V Chelsea
300 Congress Street
Boston, MA 02210

May 17, 1994





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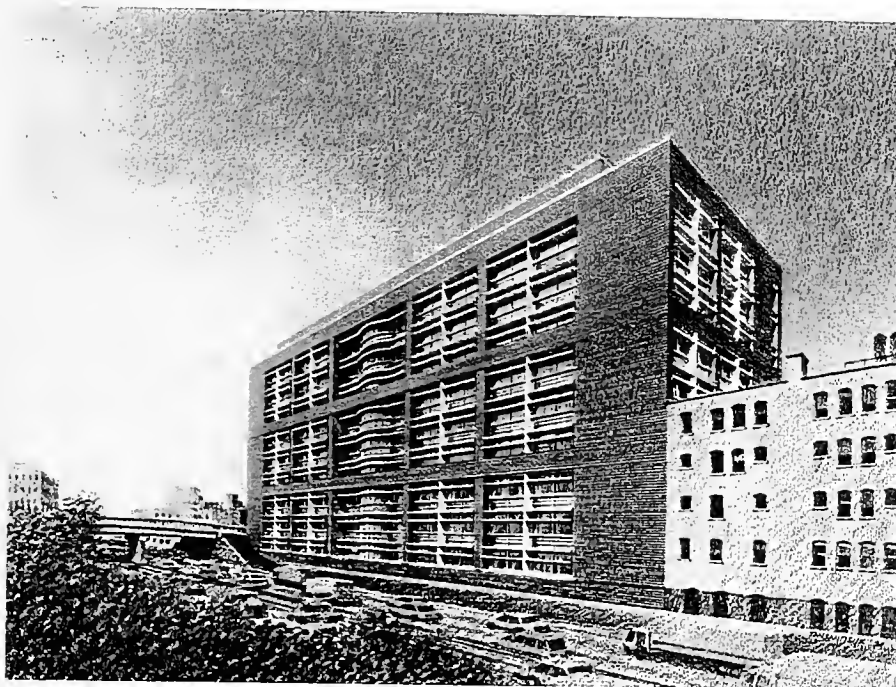
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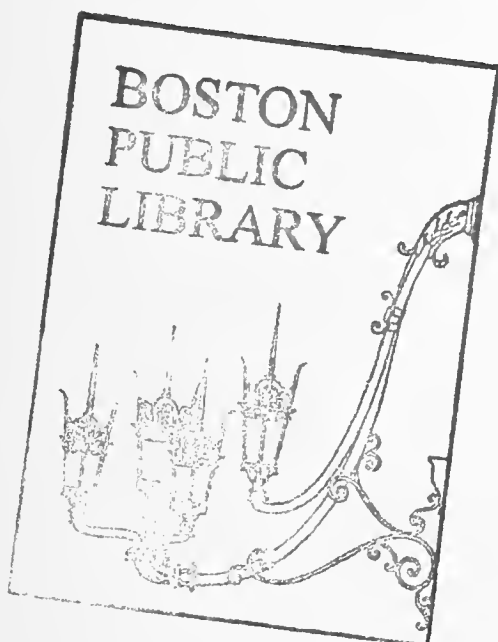


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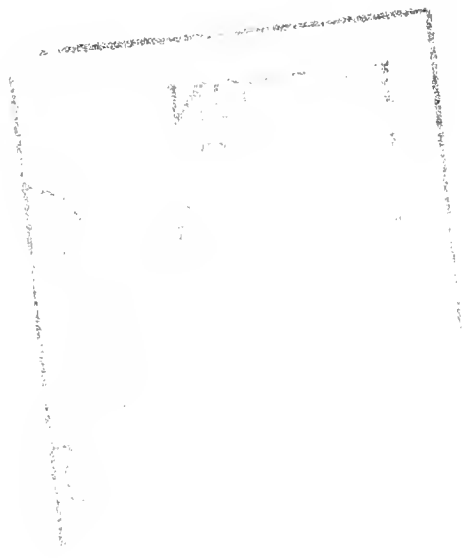


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1.0 *INTRODUCTION*

Project Name

Boston University Center for Photonics Research
22 Babbitt Street
Boston, MA 02116

Project Summary

Boston University (the University) proposes to construct a new \$70 million Center for Photonics Research (the Project) on the Charles River Campus at 22 Babbitt Street (see Figure 1). The Project includes development of a new building, approximately 250,000 square feet of gross floor area, which will replace and upgrade science and engineering academic space and establish new photonics research facilities. The new building will include laboratory facilities, classroom/lecture hall and seminar space, and supporting photonics library facilities. The Project also includes renovation of existing academic facilities on the site which will be connected to the new building. The site currently contains a vacant building and science and engineering school facilities.

The Project will provide a number of benefits which include but are not limited to:

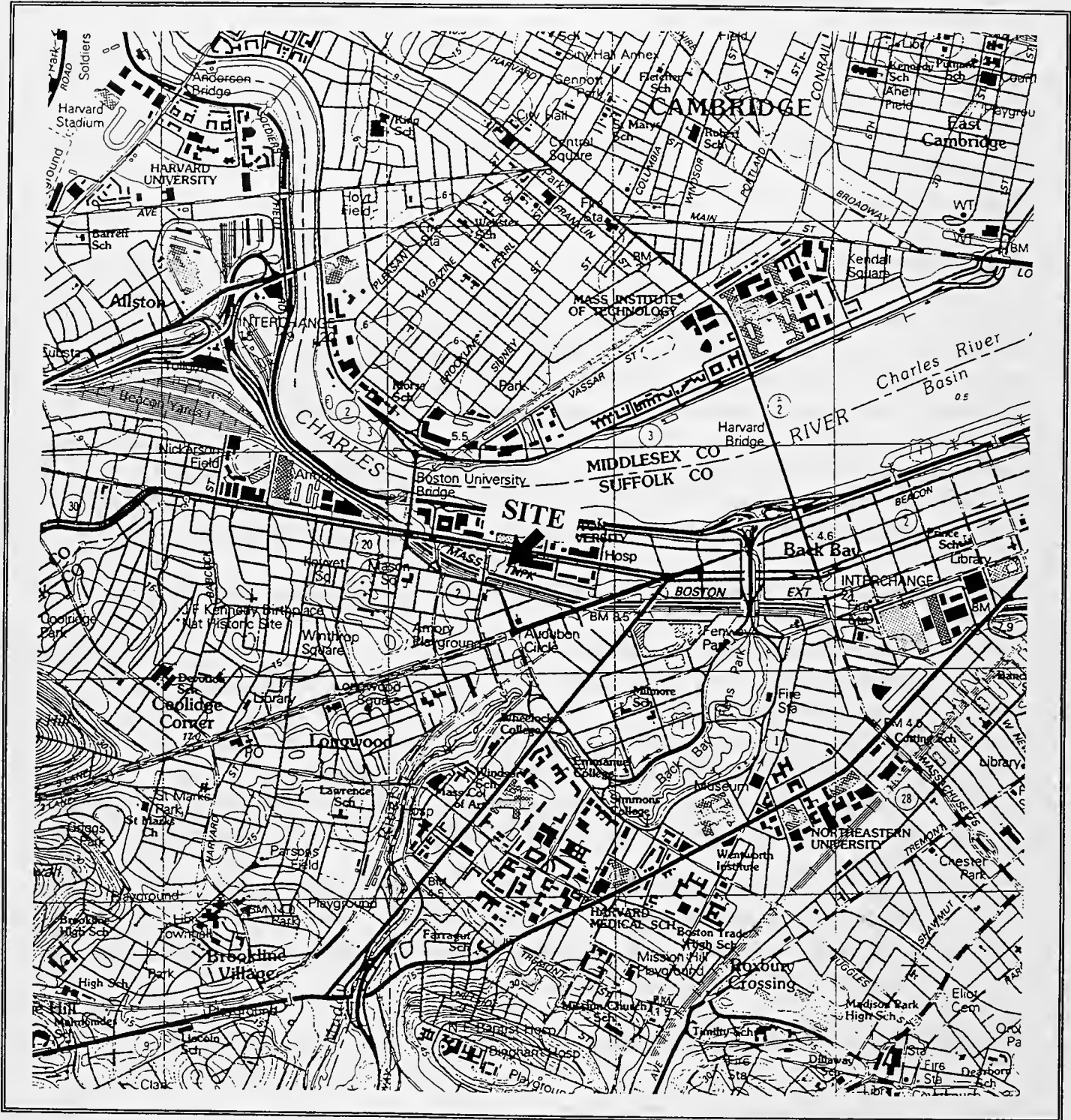
- Creating approximately 250 construction jobs.
- Providing state-of-the art facilities for research and new product development using photonics technology.
- Providing "incubator" space for new companies, including small and minority businesses which will expedite the creation of "spin off" businesses.
- Attracting a larger share of the rapidly growing photonics research market.
- Upgrading existing University science and engineering laboratories and classroom facilities.
- Providing approximately \$900,000 to the City of Boston: \$750,000 to the Neighborhood Housing Trust and \$150,000 to the Neighborhood Jobs Trust.
- Revitalizing the area with an attractive new building, landscaping, improved pedestrian circulation, and a reconstructed Babbitt Street.

The Project construction is expected to begin in late 1994 and be completed by the end of 1996.

2.0 *PROJECT BACKGROUND*

Photonics research is the practical use of light for a broad range of applications including high speed computation, communications, environmental sensing and controls, biological and medical technologies, and information storage. Current applications include telecommunications,

Project Notification Form
Boston University Center for Photonics Research



Locus Plan

Prepared By:

Fort Point Associates

Figure 1

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Boston University Center for Photonics Research

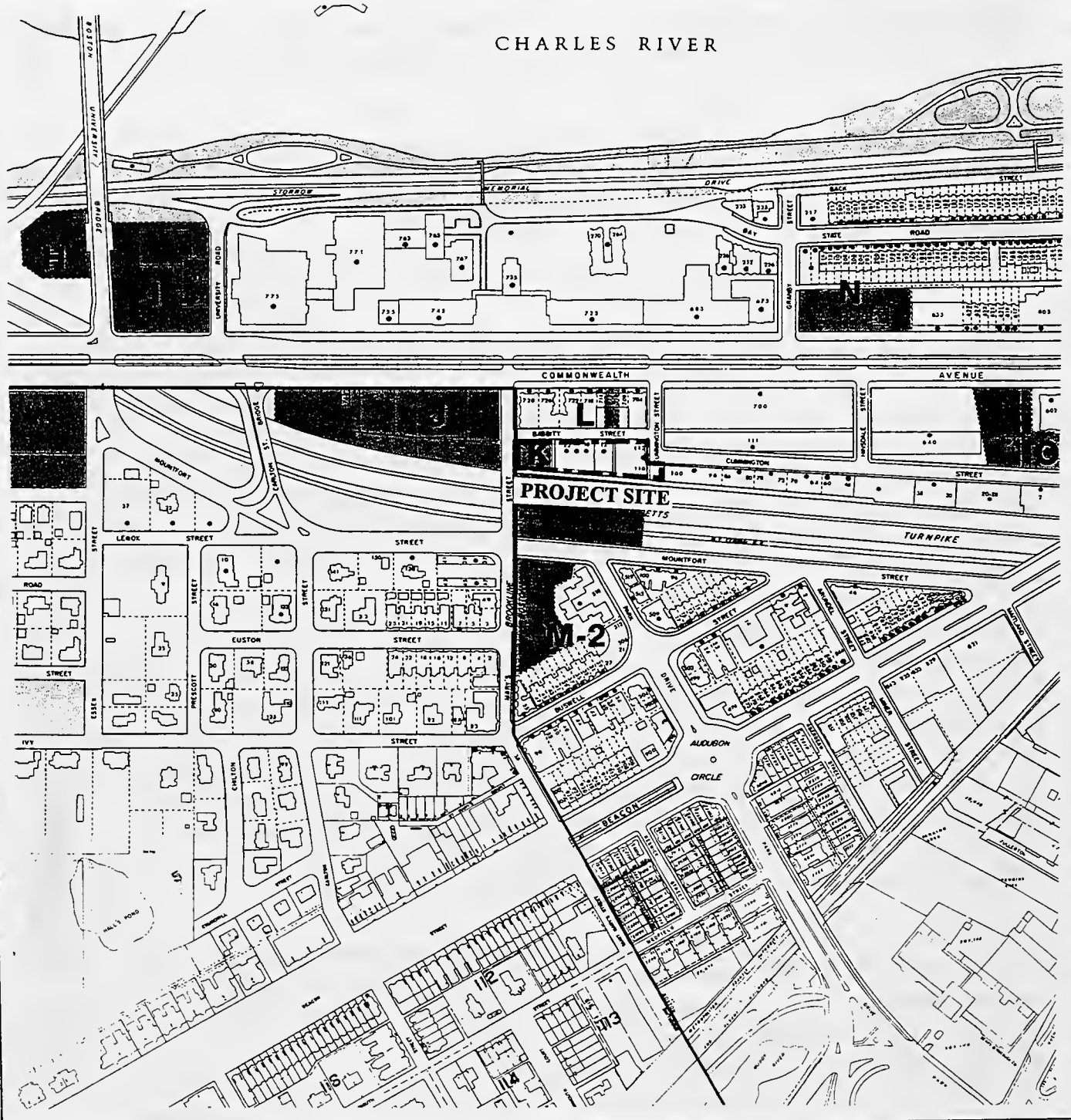
surgery, compact disk technology, and supermarket checkout scanners. Photonics today is compared to electronics in the 1950's. It is emerging as one of the most important technologies of the future.

It is the goal of the University to establish a world renowned photonics center which will emphasize development and marketing of new products using photonics technology. The photonics industry already accounts for \$75 billion per year in revenues and is expected to triple during the next decade. It is hoped that these new photonics facilities will make Boston a market center for photonics activity, creating a new employment base for the City economy.

The University was recently awarded a \$29 million grant from the Department of Defense, which is matched by the University, to establish an interdisciplinary photonics research center on the Charles River Campus. The grant has two major requirements to design and construct a new facility to house the Center for Photonics Research and to establish on-going research and development activities in this facility. The Center for Photonics Research building will house three separate programs: Photonics Materials, Photonics Devices and Systems; and Photonics Communications, Management, and Training. The grant requires implementation within a three year time frame. In order not to jeopardize this grant, the Project must be expedited in a timely fashion.

As part of the Project's building program, the University is taking the opportunity to upgrade and incorporate academic science and engineering space with the Photonics facilities because the uses are complimentary to each other and can serve multiple functions. The Project, therefore, will integrate practical science and engineering education on campus with local industrial research and development. The new building includes "incubator" space for new companies, including small and minority owned businesses as part of the academic facilities. The Center for Photonics Research is planned to be a perpetual resource for businesses and other organizations who otherwise would not have access to a complete array of synthetic, analytical, and fabrication equipment necessary for the development of practical devices and products.

The Project is consistent with the Boston University Charles River Campus Master Plan 1986 - 1996 (the Master Plan). The Master Plan is the result of the comprehensive planning process which included City officials, numerous community and special interest groups, and University officials. As a result, the Master Plan enjoys endorsement of a broad range of groups and individuals. The Master Plan was submitted and approved by the City in early 1987. The Project site is located on Parcel K as presented in the Master Plan and also on the adjacent engineering school buildings at 12-22 Babbitt Street and 110-112 Cummington Street (see Figure 2). The Master Plan proposes the site as a logical extension of the engineering complex. Parcel K has been acquired and chosen for this Project, which is indeed an integration and extension of the science and engineering complex on campus. The Master Plan will be updated to reflect the Project use as proposed. The University has made two presentations to the Boston



Potential Site Plan - Parcel K and Project Site
(Boston University Charles River Campus Master Plan 1986-1996)

Prepared By:

Fort Point Associates

Figure 2

University Task Force on the Project. One meeting was held on April 12, 1994 and the other on May 11, 1994. At the latter meeting, the Task Force voted to approve the Project concept and to recommend the amendment of the Master Plan to reflect the Project.

3.0 *PROJECT TEAM*

Project Proponent

Mr. Paul Clemente
Boston University
881 Commonwealth Avenue
Boston, MA 02215

Geotechnical Engineer

Mr. Frank Leathers
GEI
1021 Main Street
Winchester, MA 01890

Architect

Mr. Paul McGowan
Cannon
148 State Street
Boston, MA 02109

Civil Engineer

Mr. David Eves
Mr. Rick Carpenito
URS
38 Chauncy Street
Boston, MA 02111

Environmental Consultant

Mr. Jamie Fay
Ms. Rayna Rubin
Fort Point Associates
300 Congress Street
Boston, MA 02210

4.0 PROJECT DESCRIPTION

Existing Conditions

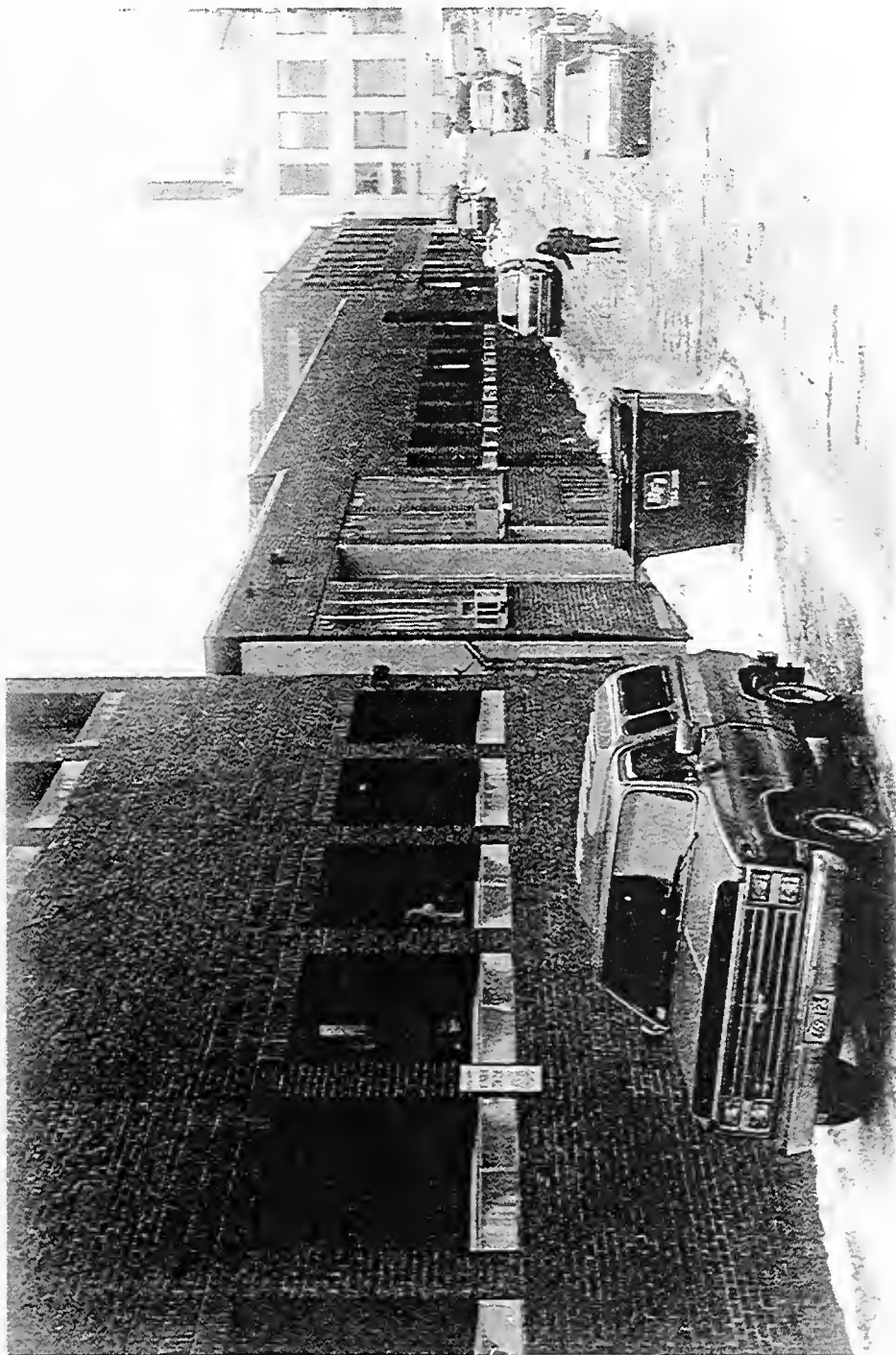
The Project site is located on Babbitt Street in the western portion of the Boston University Charles River Campus in the area known as the science and engineering complex. The site is bordered by the Massachusetts Turnpike to the south, St. Mary's Street to the west, Babbitt Street to the north, and Cummington Street to the east. The east side of the site opens onto the engineering complex. The back of mixed retail and residential buildings abut Babbitt St. and the front of these buildings face Commonwealth Avenue. Across St. Mary's Street from the site are academic buildings. The buildings to the north are used for mixed retail, office and dormitory/residential purposes. To the east are University academic facilities, and across St. Mary's Street on the west side are University academic facilities. The site is surrounded almost exclusively by University owned properties. Figures 3 through 7 show existing conditions and site location.

The site is approximately 46,205 square feet in size and includes several academic buildings and a small open space on the eastern end. These buildings vary in size and use. The existing buildings are summarized below in Table 1.

TABLE 1 EXISTING BUILDINGS
(Approximate Square Footage)

Address	Square Feet	Uses
12 Babbitt Street	8,200	Engineering School
18-22 Babbitt Street	21,400	Engineering School
110-112 Cummington Street	49,000	Engineering School
6-8 St. Mary's Street	17,000	Vacant

The Project site is basically rectangular in shape and varies in elevation east to west with an approximate 10 foot "dip" in the middle of Babbitt Street. The site is at an average elevation of 21.6 feet Boston City Base.



Babbitt Street Looking West

Prepared By:

Cannon

Figure 3

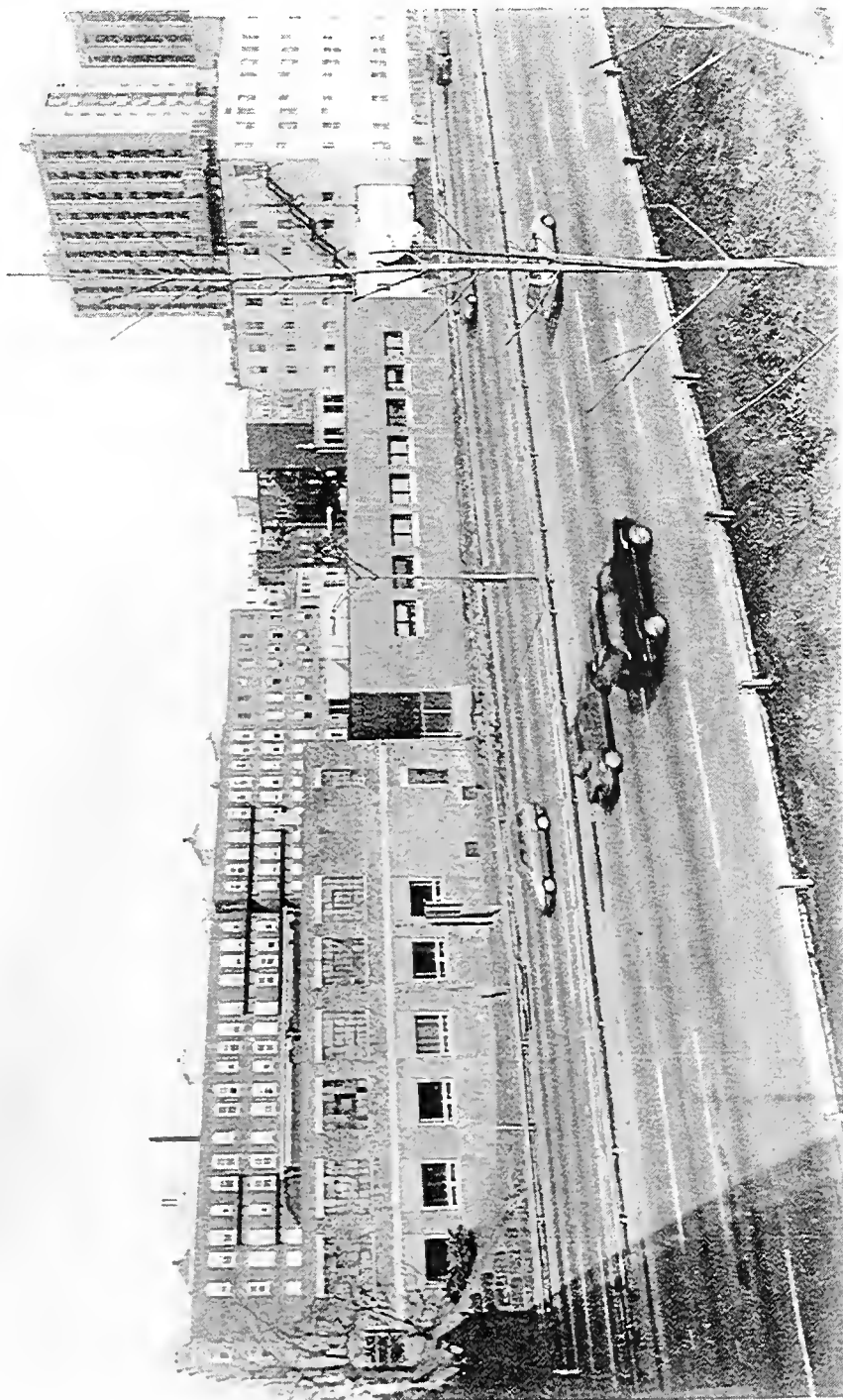


St. Mary's Street Looking Northeast

Prepared By:

Cannon

Figure 4

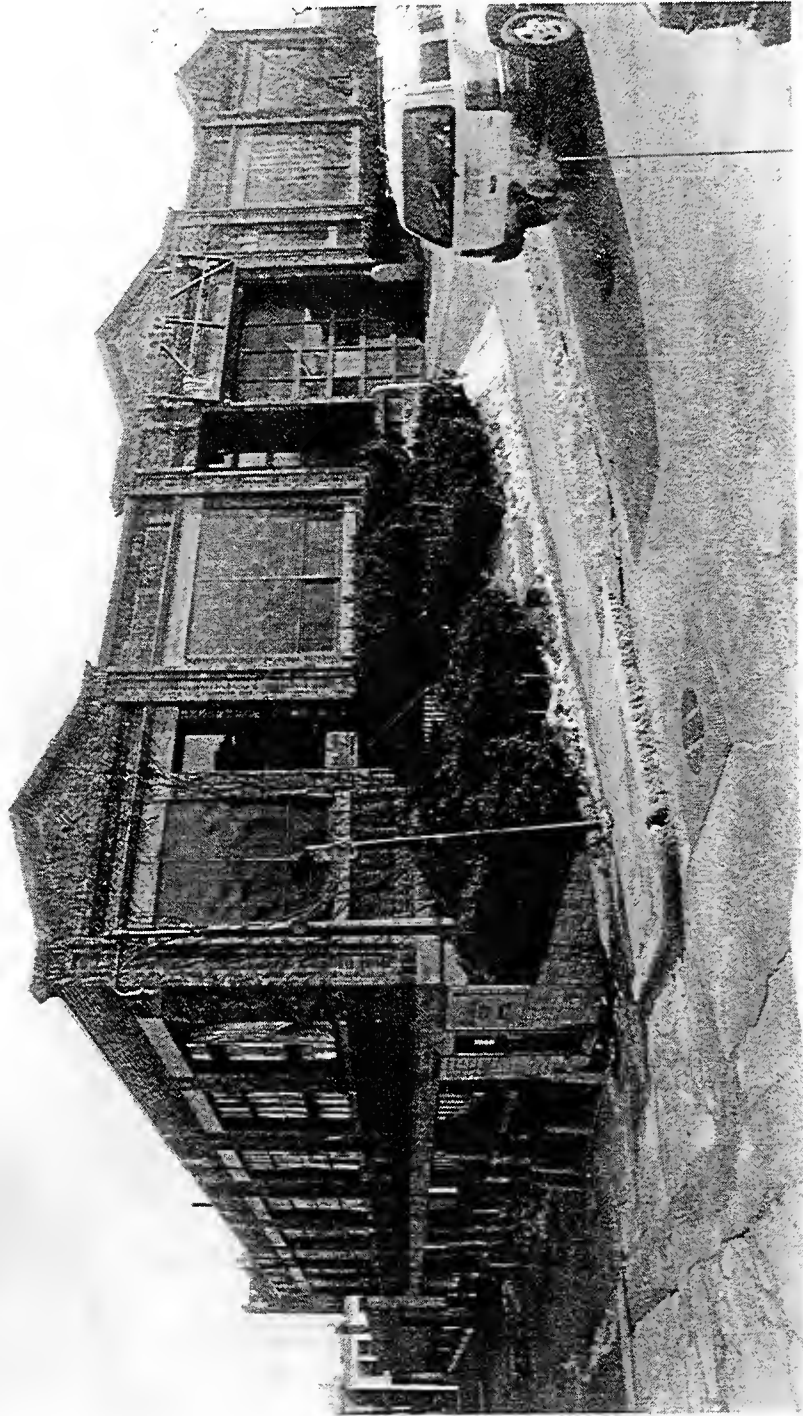


Massachusetts Turnpike Looking North

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Cannon

Figure 5

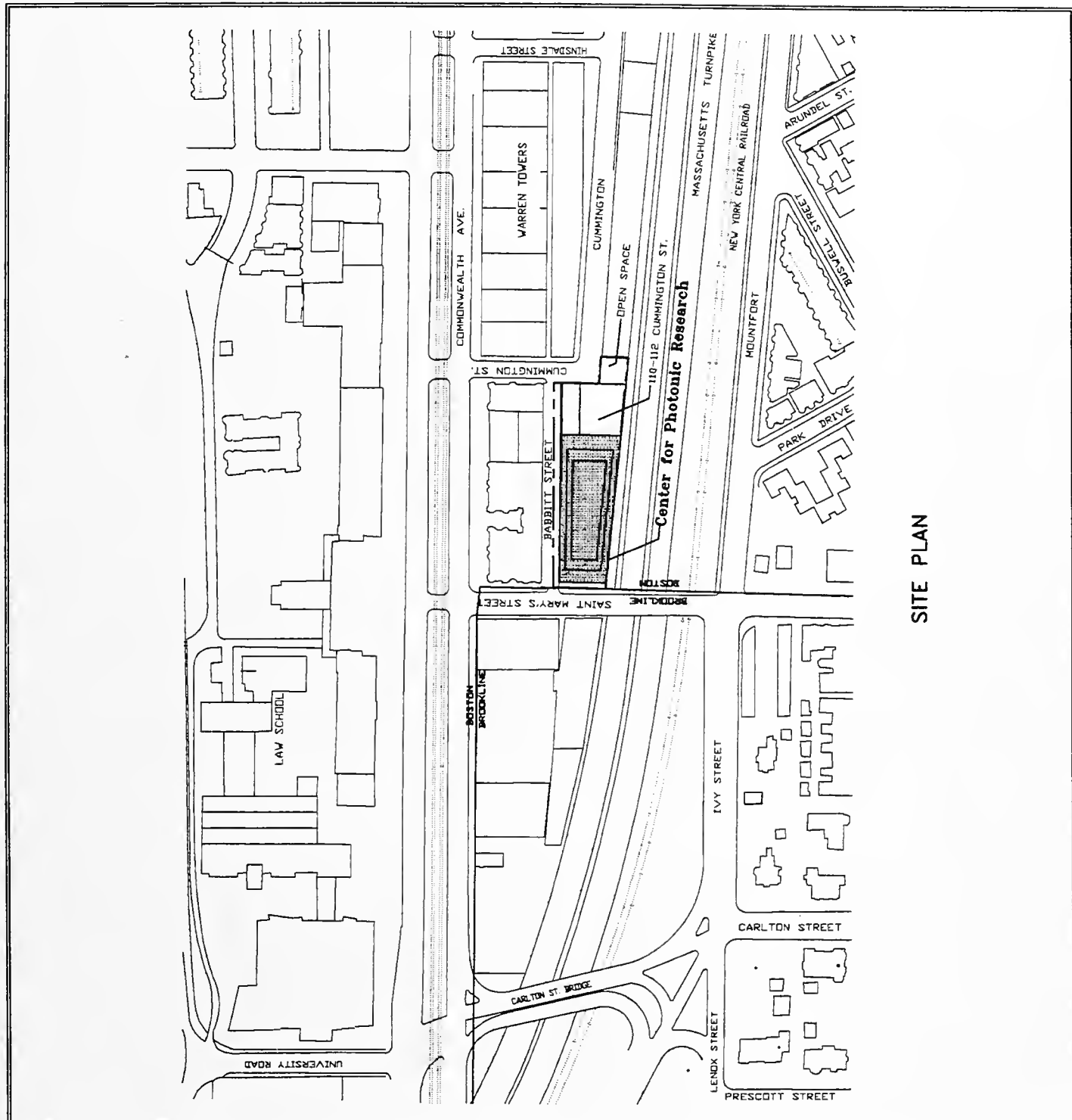


Babbitt Street Looking East

Prepared By:

Cannon

Figure 6



SITE PLAN

Site Location Plan

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Cannon

Figure 7

Building Program

The Center for Photonics Research project includes three phases: demolition of three existing buildings, rehabilitation of one existing building, and the development of a new building on the site.

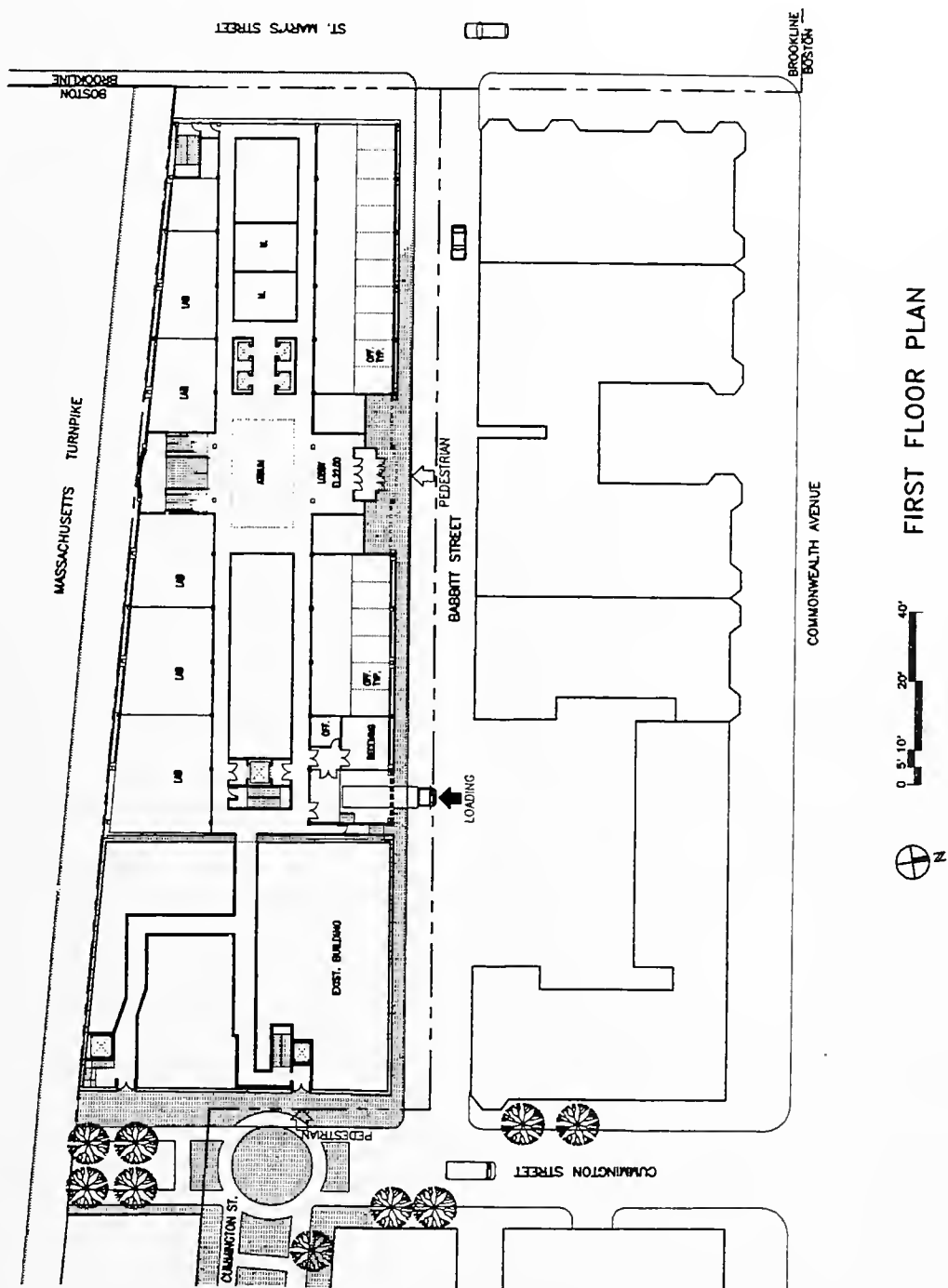
Approximately 46,600 gross square feet of classroom and vacant building space will be demolished including buildings at 12 Babbitt Street, 22 Babbitt Street, and 6 - 8 St. Mary's Street. The academic space in these buildings will be replaced and upgraded within the new building. The new building will contain approximately 250,000 gross square feet of laboratory, classroom/lecture hall and seminar facilities, and supporting Photonics library space. The building footprint is approximately 25,600 square feet, and will have nine stories plus a basement. The building will be approximately 165 feet above grade (average) to the top of the mechanical penthouse. The new building program consists of one floor of classroom use, and nine floors of laboratory space (including the basement). The basement floor of the new building is partially above grade and will contain both mechanical and laboratory uses.

The building at 110 - 112 Cummington Street contains approximately 49,000 square feet of classroom, laboratory and supporting office space. This building will be retained and rehabilitated. There will be a connection from these existing facilities to the new building allowing easy integration of activities and direct access to the science and engineering complex.

The Floor Area Ratio (FAR) of the Project will be approximately 6.5 including the new building and the rehabilitated space on Cummington Street.

Project Access

The Center for Photonics Research will have several pedestrian access points to the building. A pedestrian access connection will be provided through the 110 - 112 Cummington Street building into the new building. This arrangement will provide a direct connection to the University science complex. Two additional pedestrian access points to the building are included in the building program. The main entrance to the new building is on Babbitt Street at the first floor level. A smaller building entrance will be provided on St. Mary's Street at the second floor level. Loading and servicing facilities for the new building are located on Babbitt Street away from the main entrance. The Project improvements include upgrading and repaving of Babbitt Street. A project access plan is provided in Figures 8 and 9.

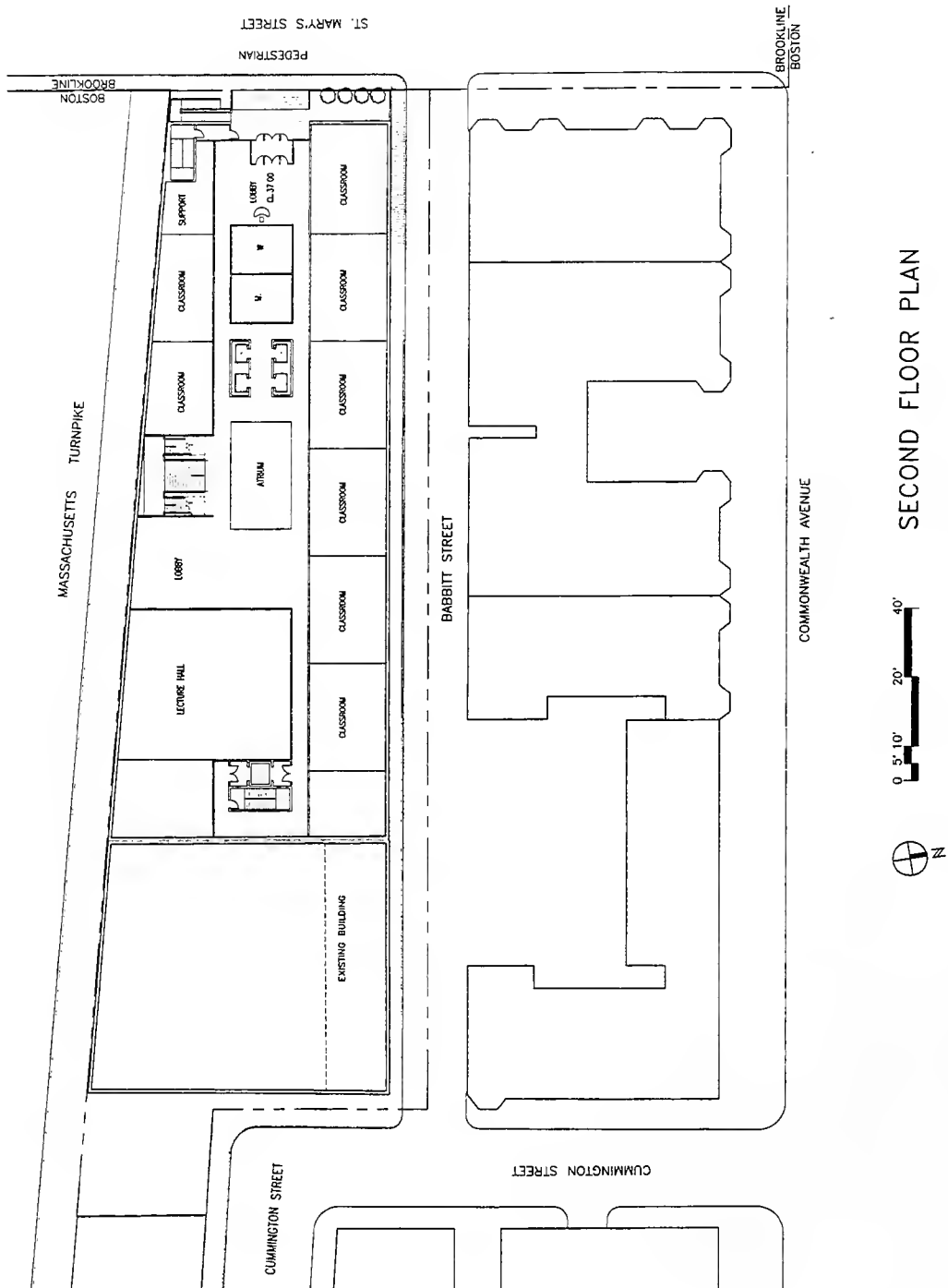


Project Access - 1st Floor

Prepared By:

Cannon

Figure 8



Project Access - 2nd Floor

Prepared By:

Cannon

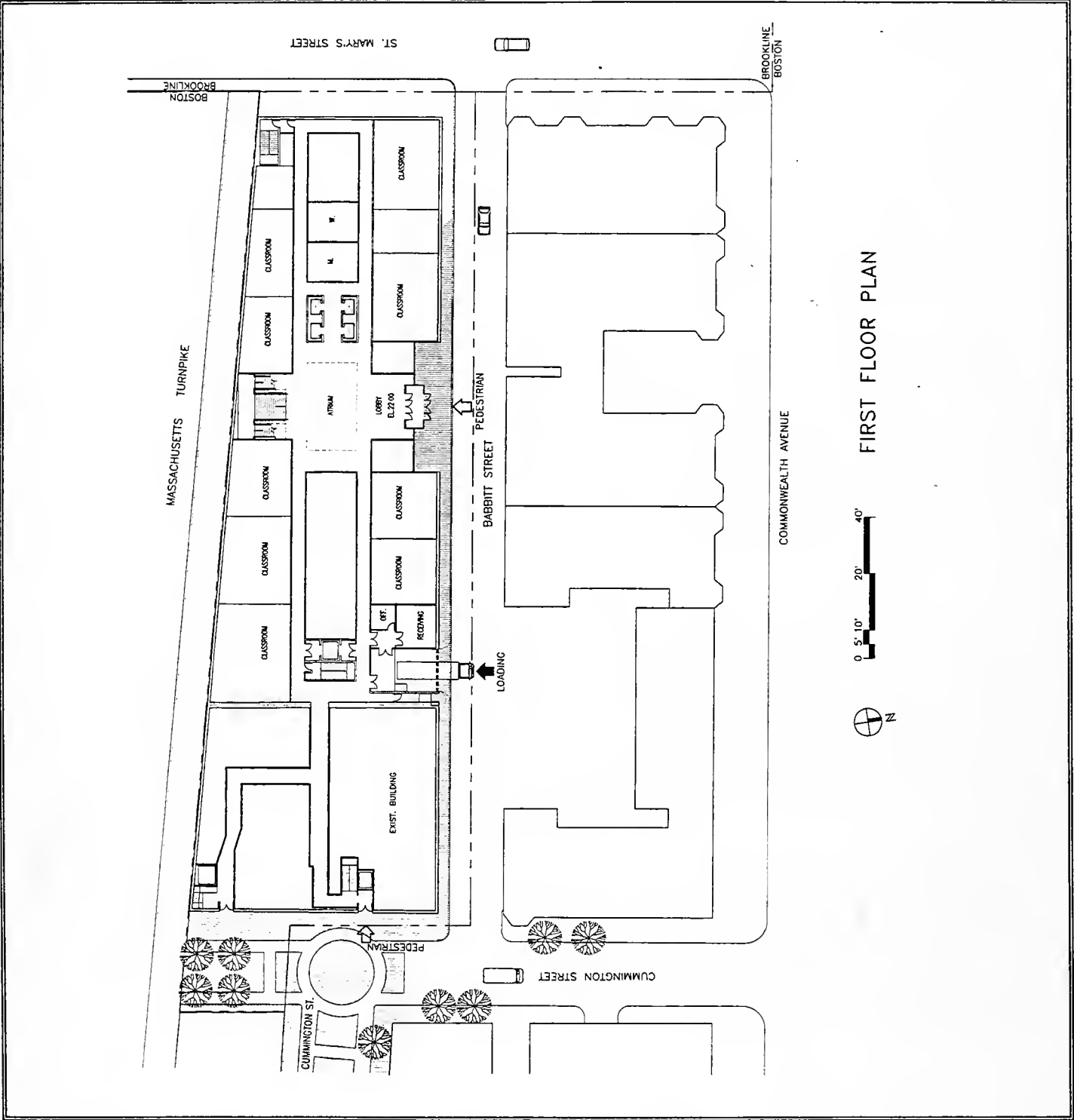
Figure 9

Design Features

The new Center for Photonics Research building is designed to address a combination of factors: the dense urban character of the Boston University campus; program requirements of the Department of Defense grant; the program needs of the University; and the architectural elements of other buildings recently developed on the campus and within the science and engineering complex. The floor plans for classroom and laboratory facilities reflect the program requirements of the building. Typical floor plans are found in Figures 10 and 11. Over the past ten years, the architectural signature of new buildings on the Boston University Charles River campus has been consistent. This style employs red brick with light colored stone base window sills, and large deep recessed windows with triple soldier course brick lintels overhead. The use of brick combined with stone is also consistent with the style of historical buildings in the area. Examples of this architectural style can be found all along the Charles River Campus including the Boston University Bookstore building in Kenmore Square, the Metcalf Science Center (590 Commonwealth Avenue) and the Biology and Physics Building (620 Commonwealth Avenue) in the science and engineering complex, Sargent College (635 Commonwealth Avenue), the Commonwealth Armory at the western end of campus, and the new School of Management (595 Commonwealth Avenue) which is slated to begin construction this spring.

The new Center for Photonics Research reinforces the recent architectural style by employing the same materials in a similar style. The facade of the Project building is divided into three horizontal sections: base; middle; and top. The base of the building consists of an articulated ground level with transparent storefront glazing and a loggia located at both entries. The middle of the building is emphasized by the expanse of red brick separated from the base by limestone bands and the use of deepset punched windows with sunscreens. The top of the building is defined by upper and lower bands of brick coordinated with the rhythm of the fenestration. The building is completed by the articulation of the penthouse and skylight.

The height and massing of the Project are intended to maximize the use of the site and achieve the program requirements without dominating views from surrounding areas. The Project will be visible from the Massachusetts Turnpike. Portions of the building will be visible from selected spots along Commonwealth Avenue. From the Charles River Esplanade, views of the Project will be obscured by existing buildings. Figures 12 through 16 provide the Project concept and building elevations.

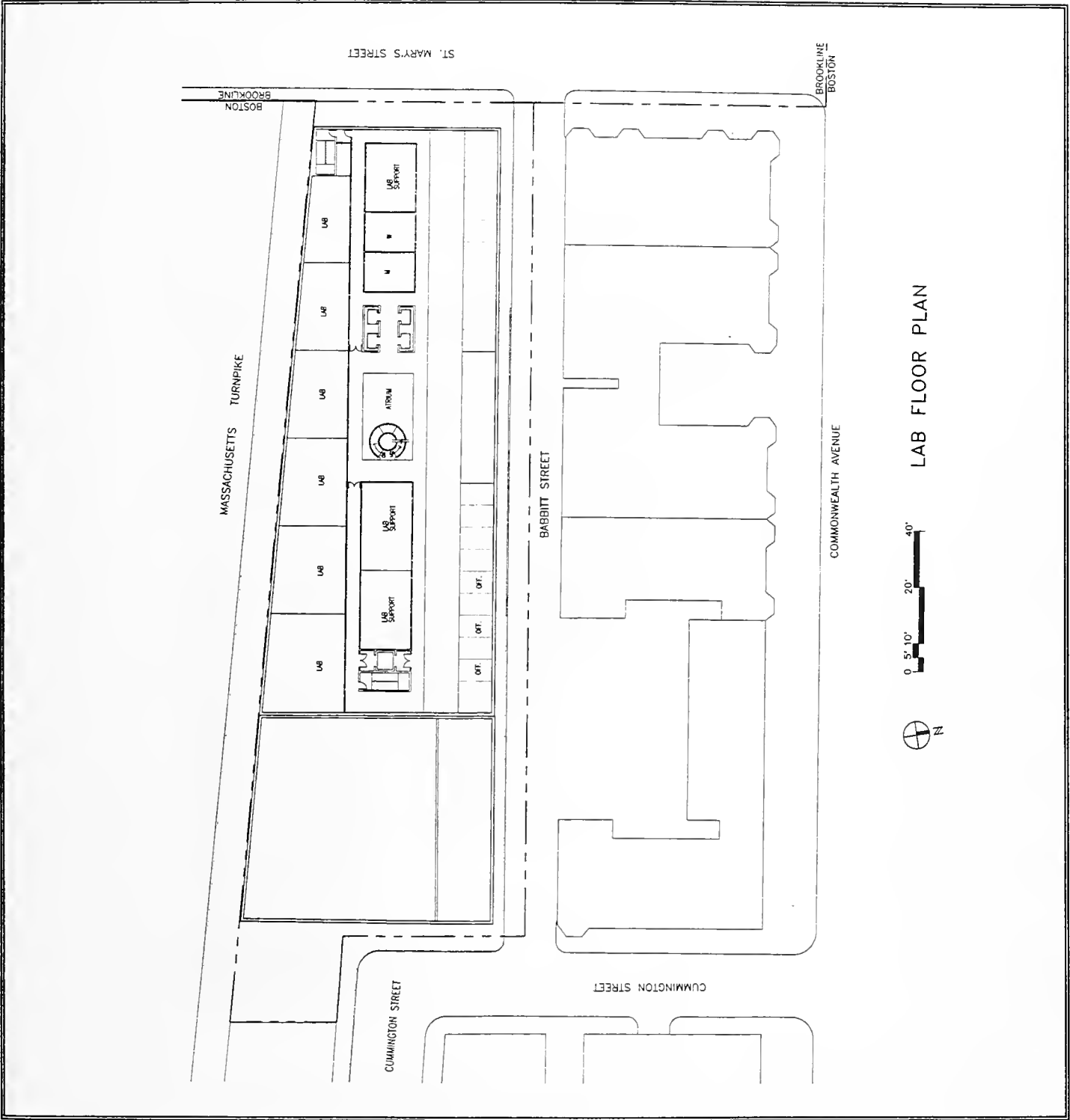


Classroom Floor

Prepared By:

Cannon

Figure 10

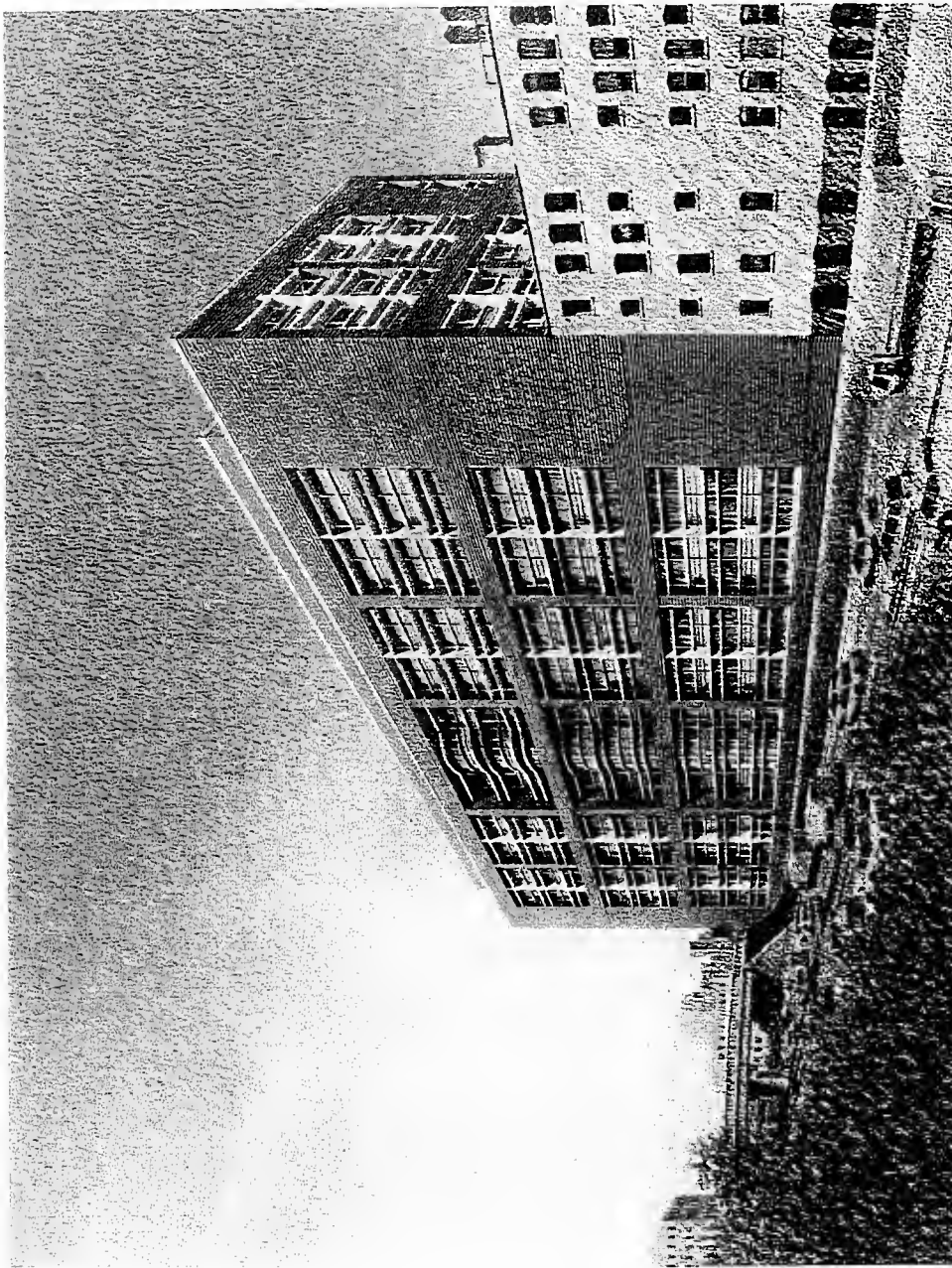


Typical Laboratory Floor

Prepared By:

Cannon

Figure 11

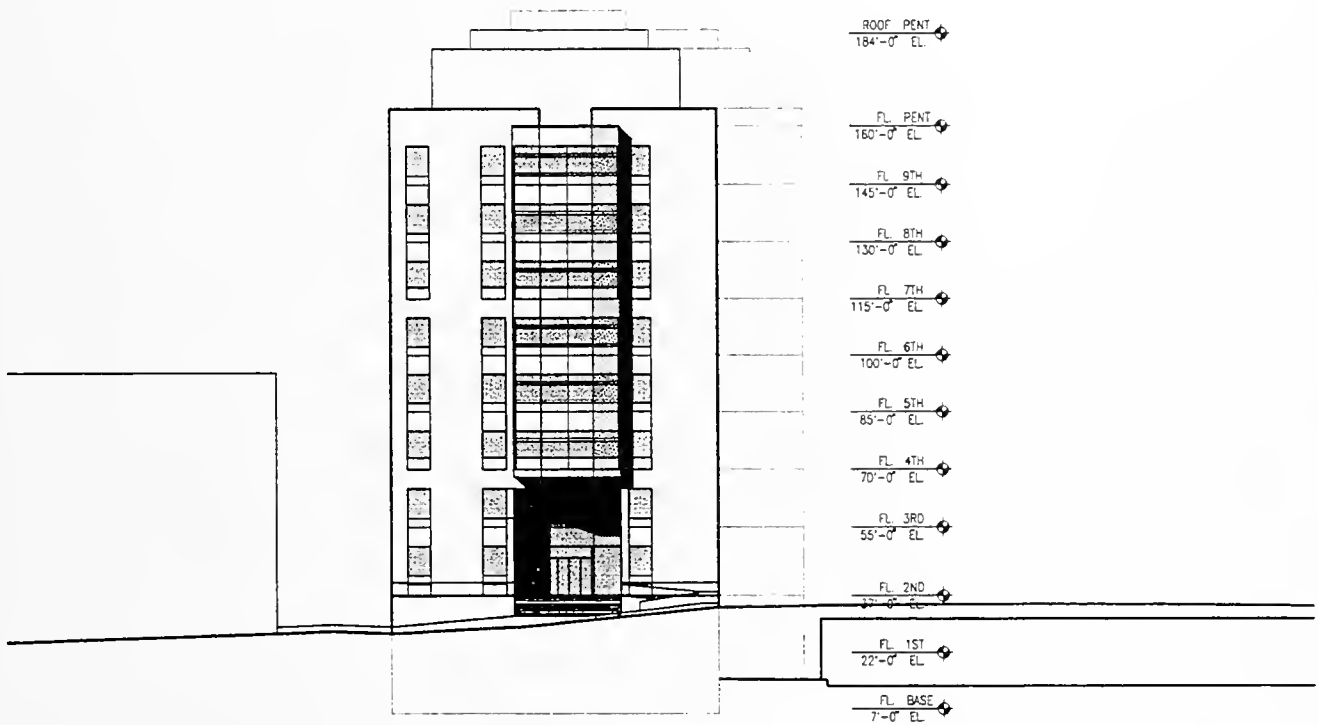


Project Concept

Prepared By:

Cannon

Figure 12



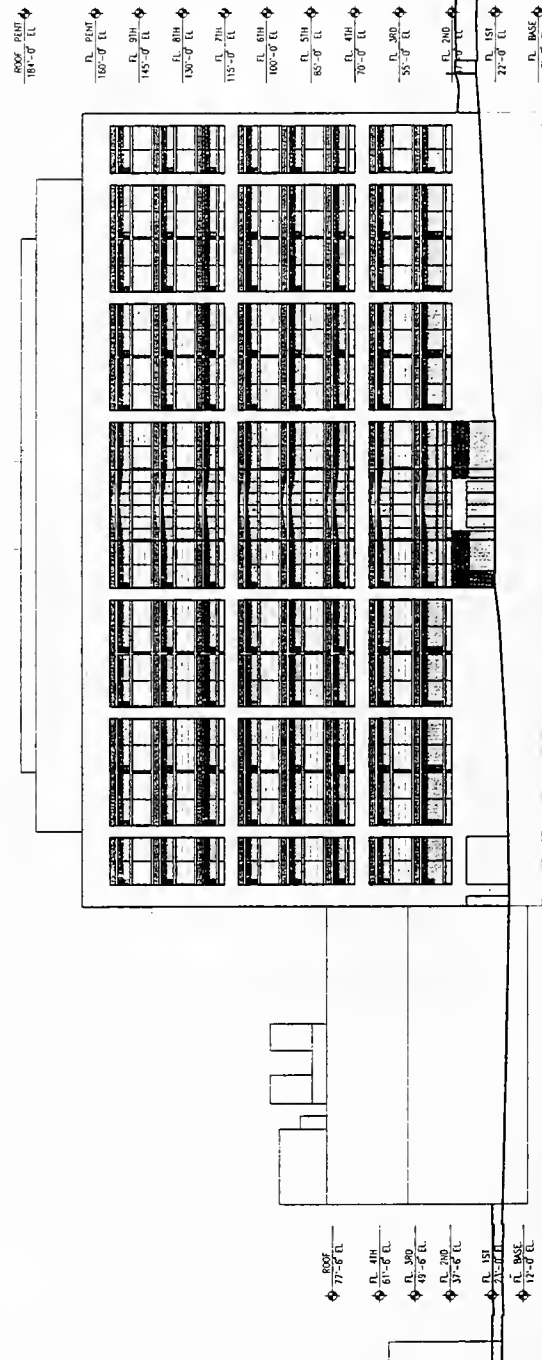
St. Mary's Street Elevation

West Elevation

Prepared By:

Cannon

Figure 13

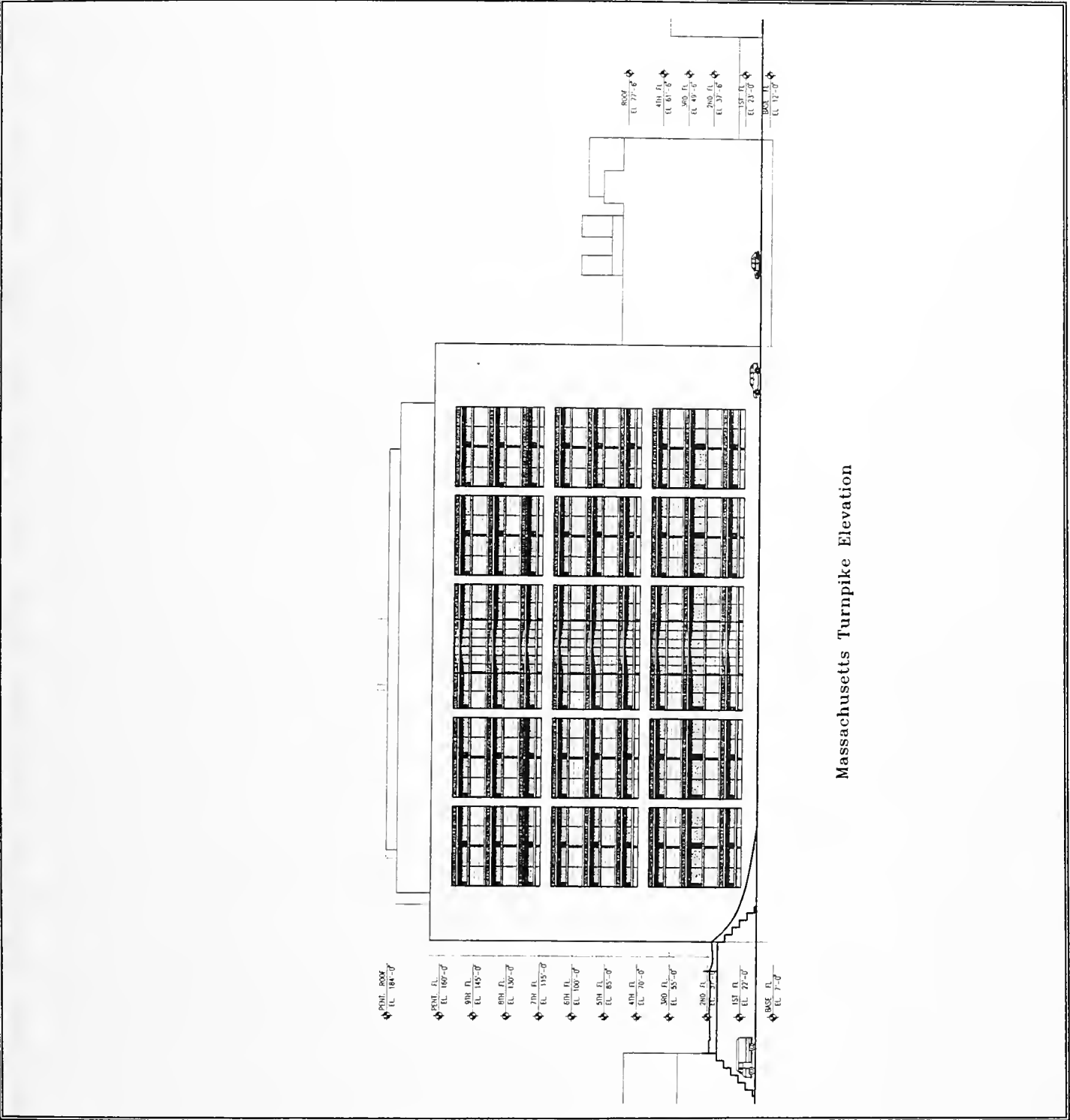


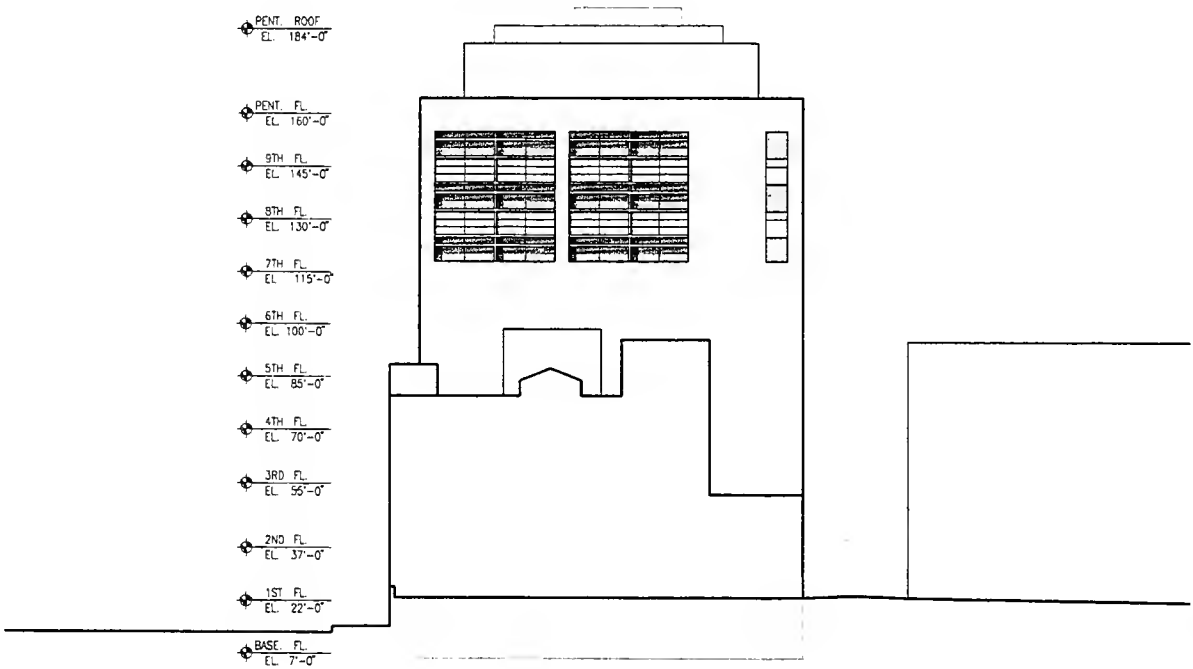
North Elevation

Prepared By:

Cannon

Figure 14





Cummington St. Elevation

East Elevation

Prepared By:

Cannon

Figure 16

5.0 ENVIRONMENTAL COMPONENTS

Historical/Archaeological

Research was conducted at the Massachusetts Historical Commission and Boston Landmarks Commission to identify potential historic and archaeological resources at and near the Project site. The investigation revealed that no buildings on site are listed or eligible for listing on local, state, or National registers of historic buildings. The Project site is not within nor does it abut any listed historic districts. A map showing historic resources in the area is provided in Figure 17.

National Register

- Charles River Basin Historic District
- Cottage Farm Historic District
- 808 Commonwealth Avenue (Peter Fuller building)

State Register

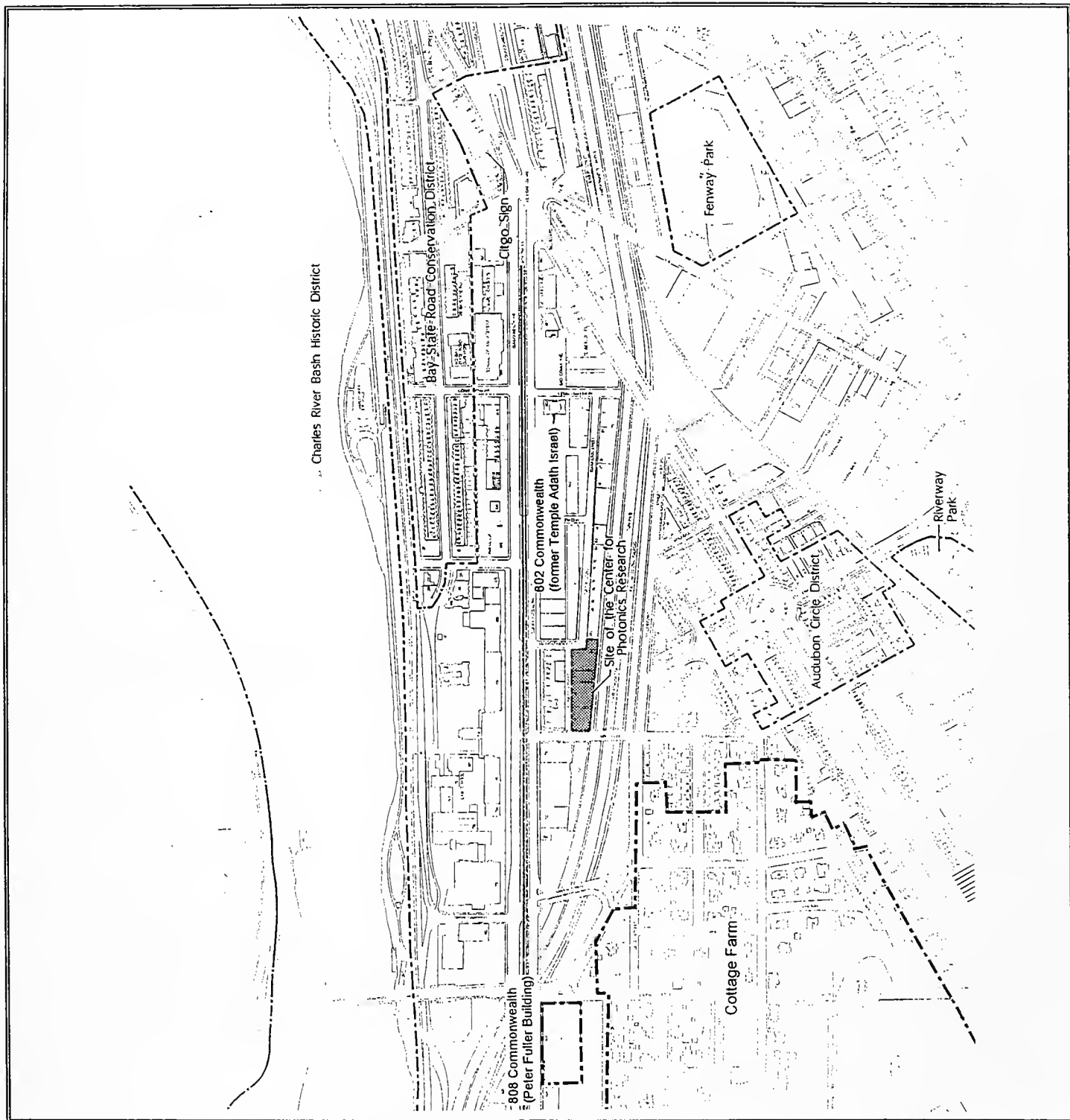
- Charles River Basin Historic District
- Cottage Farm Historic District
- Back Bay West/Bay State Road Architectural Conservation District (eligible for the National Register)
- 808 Commonwealth Avenue (Peter Fuller building)

Local Registers (Boston and Brookline)

- Cottage Farm Historic District
- Back Bay West/Bay State Road Architectural Conservation District
- 808 Commonwealth Avenue (Peter Fuller building)

It may be noted that the Citgo sign in Kenmore Square, Fenway Park, and the Audubon Circle area have been identified as eligible for listing on the National Register. The Morse Auditorium at 602 Commonwealth Avenue (former Temple Adath Israel) has been surveyed by the Boston Landmarks Commission but was not listed as recommended for National Register eligibility.

There were no archaeological or pre-historic archaeological listings for the site.



Historic Resources

Prepared By:

Cannon/Fort Point Associates

Figure 17

Wind

The development of a new building on any site has the potential to cause changes in the wind conditions at the site and adjacent areas. The principal concern is the potential influence on the pedestrian environment chiefly sidewalks, open spaces, and building entrances. Several factors influence the pedestrian-level wind climate including: building height, massing, shape, and texture; landscaping; neighboring buildings and other structures; streets; and local wind conditions.

In general, problematic wind conditions tend to occur during the winter season. In the vicinity of the Project site, winter winds tend to come from the northwest and northeast. It is not anticipated that the Project will create adverse pedestrian-level wind conditions. The Project site is generally protected by existing buildings to the north and northeast.

Shadow

Preliminary calculations were taken to determine the extent of net new shadows generated by the Project. The greatest attention is given to pedestrian areas and street-level open spaces. These calculations indicate that net new shadows are likely to be found along Babbitt Street with some extension to Commonwealth Avenue. The preliminary calculations indicate that off-site impacts of shadow cast by the Project will be minimal and will not affect sensitive public areas, such as along the Charles River.

Noise

The Project is located in an urban setting with high ambient noise levels adjacent to a large interstate highway. Sensitive receptors in the immediate vicinity of the Project site include University owned dormitory and apartment buildings near the Project site. The University, as the owner of the majority residential and other academic buildings around the site, is particularly concerned about potential noise impacts relating to the Project construction and operation.

All operational activities associated with the Project and construction work at the site will be performed in accordance with the Regulations for Control of Noise in the City of Boston. Further, a Construction Management Plan will be prepared and implemented during construction. Among other things, this plan will stipulate protocols to be followed by the contractors in order to manage noise at the site. This plan will define construction hours, truck routes, procedures for monitoring vibration during construction, and additional procedures such as the periodic inspection of mufflers to ensure proper operating conditions.

Foundation construction will include building demolition and likely require pile-driving. These activities will also be conducted in strict compliance with applicable regulations. Pile driving is not expected to last longer than four to eight weeks. To the extent practicable, the staging of

construction equipment at the site will be located with consideration for potential noise impacts on adjacent land uses. Accordingly, compressors, pumps, and similar pieces of equipment which remain relatively stationary throughout construction will be located away from residential uses to the extent construction activities and site limitations will permit.

Both the selection of mechanical systems for the Project and the design of the building will take potential noise impacts into consideration. There are no special activities associated with the operations and/or use of the building which are expected to create negative noise impacts. Mechanical equipment such as air conditioning compressors, generators, and similar equipment, will be roof-mounted and/or properly attenuated to achieve noise emission levels which are in compliance with applicable criteria for city requirements.

Air Quality

The generation of potential new air emissions associated with the new Center for Photonics Research is expected to be minimal. Air emissions associated with the operation of the building are expected to be similar to other engineering school facilities on campus. All boilers will meet applicable air quality standards.

Air quality impacts during construction will principally be comprised of fugitive dust associated with demolition and emissions from construction equipment. Precautions will be taken to control dust and other debris during demolition. Fugitive dust will be controlled by means of periodic application of environmentally benign wetting agents. As soon as practicable, all exposed areas will be temporarily stabilized (straw or jute matting for example) or permanently landscaped.

Construction equipment will be maintained in good working order so as to maximize efficiency and minimize air pollution emissions. Details of air quality control measures associated with construction will be provided in the Construction Management Plan.

Water Quality

The new Center for Photonics Research will have negligible effects on water quality. Currently, the site is developed with buildings and other impervious surfaces. At the completion of the Project, impervious surfaces will remain approximately the same. The stormwater runoff pattern will also remain approximately the same as existing conditions. Waste water discharged into the municipal sewerage system from the building will be comprised largely of domestic wastes. If necessary, laboratory Waste water will be pretreated in a manner similar to pretreatment performed at other University laboratory facilities.

Geotechnical

At this point in the Project, the subsurface information provided is from past records. The subsurface conditions are likely to vary considerable within a relatively short distance. Conditions will be further defined when additional borings are installed.

Subsurface Conditions

The general subsurface stratigraphy in the area consists of a fill layer approximately 10 to 20 feet thick, underlain by several feet of organic deposits, and then layers of sand and gravel, marine clay, and glacial till with varying thicknesses extending to bedrock. The sand and gravel layers could be of fluvial or glaciofluvial origins with varying densities. The clay is expected to vary from soft to stiff. The glacial till is expected to be very dense. From the available geologic information, the bedrock surface is expected to be at a depth of approximately 170 feet.

Groundwater was observed at a depth of about 15 to 20 feet below existing grade in December 1992 in three wells previously installed. At this time, significant dewatering, such as deep wells or well points, is not anticipated since the Project will involve only one basement level. It is expected that local pumping will be required during construction to remove groundwater seepage into open excavations, precipitation, and surface runoff water.

Foundation and Excavation

The existing fill and organic strata are not expected to be suitable for support of the Project building. It is therefore, anticipated that the building will be supported on pile foundations. The type, capacity, number, and depth of piles have yet to be determined.

Existing structures on site will be demolished to accommodate the new building. Some of these buildings contain basements. The Project building will be at approximately the same elevation as the existing buildings to be demolished. Therefore, construction excavation volumes are expected to be limited to that required for the removal of existing foundations and construction of new pile caps and utilities. Preliminary calculations indicate excavation volumes to be approximately 5,000 cubic yards.

Protective Measures

Excavation support will be required to maintain the roadway service adjacent to the Project site. In addition, there are several existing utility lines adjacent to the site including a 5-foot-diameter MWRA storm drain which will need to be protected during construction. Protective measures will be further defined with the development of the Project design and construction program.

Oil and Hazardous Materials

Site History

A summary of the Project site history has been compiled from reports conducted by McPhail Associates, Inc. in 1982 and GZA GeoEnvironmental, Inc. in 1992. The site of the proposed Center for Photonics Research is currently occupied by buildings under Boston University ownership. A two-story building is located at the western portion of the site at 6-8 St. Mary's Street (also known as the "elevator" building) and three academic buildings are located on the remainder of the site including 12 Babbitt Street, 22 Babbitt Street, and 110-112 Cummington Street.

The elevator building on St. Mary's Street is a brick building constructed in 1917 replacing a residential structure. The current structure was occupied by Wagner Electric Corp. between 1932 to 1937, H.G. Davis Automobile Air and Spring Service from 1937 to 1960, and the Beckwith Elevator and Lift Co., between 1960 to 1978. During part of this last period, Pappas Auto Technology was located on the site. The most recent tenant was Metropolitan Parking Services which took occupancy in 1978. Today, the building is vacant.

112 Cummington Street was originally built in 1900 as a horse-shoeing shop. In 1909, 112 Cummington Street was expanded to match up with 110 Cummington Street. In 1923, the structure on 112 Cummington Street was demolished and replaced with a two-story building on the same foundation. In 1963, the 112 Cummington Street two-story building was bought by the University and converted for academic uses. The building was renovated and enlarged in 1983 - 1984. The enlargement, toward Babbitt Street, filled an area previously used for parking.

110 Cummington Street was originally developed as stables in 1899. In 1963, the building was altered to house the College of Engineering and Science. Both buildings at 12 and 22 Babbitt Street were developed in the 1980s to provide academic engineering and science facilities for the University.

Site Assessment

An environmental site evaluation was conducted for the western portion of the site associated with the elevator building. This assessment indicated that there were low levels of several petroleum constituents and a single solvent in the soil at the site. The contamination levels in the soil were below the levels required to notify the Massachusetts Department of Environmental Protection. In addition, very low levels (below method detection limit) of tetrachloroethene (TCE) were found in a groundwater sample from one of the three monitoring wells on site. It was determined that the site does not pose significant risk to health or to the environment, and

that no further site investigation or remediation is necessary. Sampling and testing of the eastern portion of the site regarding soil or groundwater contamination have not been performed.

If any contamination is found during construction, all handling and reporting will be defined in an Excavated Soils and Material Management Plan and conducted in accordance with the Massachusetts Contingency Plan.

Construction

There are no unusual construction impacts expected for the new Center for Photonics Research project. A number of documents will be prepared which will detail handling of potential impacts including a Construction Management Plan, Excavated Soils and Materials Management Plan, and an Integrated Pest Management Plan. All applicable regulations for the control of construction noise, air quality, traffic and safety will be strictly adhered to during all construction activities.

Preliminary estimates indicate that building demolition will involve approximately 11,000 cubic yards of debris. This debris contains some asbestos materials which will be handled only by licensed contractors, haulers, and receiving facilities. Handling of these, and other materials will be detailed in the above referenced documents.

A conventional temporary support system will be established along the western edge of the site to support and protect the adjacent street and utility easement during construction. All utilities and adjacent structures will be protected during construction, but because the building design does not include significant subsurface levels, this is not anticipated to be problematic.

At many construction sites, particularly those where existing buildings will be demolished prior to construction, rodents can pose a problem. Special attention will be given to protecting remaining structures on the site and adjacent to the site from potential rodent displacement during demolition and construction of the Project. An Integrated Pest Management Plan will be established prior to commencement of construction activities.

6.0 *TRANSPORTATION*

The site currently contains no parking facilities and the completed Project will not contain on-site parking. The Project is not expected to generate many vehicle trips directly to the site but will likely generate some new trips to the eastern end of campus.

Existing Parking

There are a number of University and commercial parking facilities near the Project site. Between the Boston University Bridge and Kenmore Square, there are approximately 1,627 off-street parking spaces. In addition to off-street parking, there are two and four hour on-street meters throughout the area along Commonwealth Avenue, St. Mary's Street, Cummington Street and other side streets. Parking needs for the Project will be managed as part of the overall University parking supply.

Existing Transportation Characteristics

As previously mentioned, the Project site is located on the south side of Babbitt Street which can be accessed from both Cummington and St. Mary's Streets. Babbitt Street is a small private way which receives very little through traffic and is largely used for servicing the abutting buildings. Cummington Street is a small two-way street which mostly serves the University science complex. St. Mary's Street is one-way Street heading southbound from Commonwealth Avenue. It crosses over the Massachusetts Turnpike but does not provide direct Turnpike access.

Measurements of traffic levels were taken along Commonwealth Avenue near Sherborn Street on May 4, 1992. The counts indicated 15,500 eastbound vehicles per day and 16,900 westbound vehicles per day for a total of 32,400 vehicles per day in both directions. Other traffic counts showed that Commonwealth Avenue carried 44,350 daily vehicles west of the Boston University Bridge and 30,400 vehicles east of University Road in 1987. The traffic count for St. Mary's Street (a southbound one-way street) over the Turnpike was 1,248 vehicles (Boston Transportation Department, 1981 traffic counts, from 7 am to 6 pm).

Commonwealth Avenue is located one block north of the Project site. Commonwealth Avenue is a major east/west urban arterial street passing through the length of the Boston University Charles River campus. The MBTA Green Line ("B" Branch) tracks are located in the median in between the east and westbound traffic lanes. There are two MBTA stops located on this line which are in close proximity to the Project site. One stop is located at the Cummington Street intersection at Commonwealth Avenue and the other is located at the St. Mary's Street intersection at Commonwealth Avenue.

In addition to the MBTA Green Line, there are two MBTA bus routes, #47 and #57, which serve the site. Bus route #47 operates between Central Square in Cambridge and Boston City Hospital in the South End. It crosses the Boston University Bridge and serves the western portion of the study area. Bus route #57 provides service between Watertown Square and Kenmore Square, traveling via Brighton Avenue and Commonwealth Avenue.

In addition to service offered by the MBTA, Boston University operates two shuttle bus routes when classes are in session. One route operates as an internal circulation service for the campus, providing service between 1266 Commonwealth Avenue and Kenmore Square. The other route connects the Charles River campus with the University Medical School campus and University Hospital, located in the South End.

Future Transportation Impacts

Currently, there are approximately 450 individuals including students and University staff who use the existing facilities on Babbitt and St. Mary's Street buildings. These buildings will be torn down and replaced with the Center for Photonics Research building. The new building is estimated to provide facilities for approximately 875 students resulting in a net increase of approximately 425 students on the site. There are approximately 30 employees in the existing facilities to be demolished. The new building will accommodate approximately 360 employees resulting in a net increase of approximately 330 employees. A traffic analysis of building utilization and transportation mode split has yet to be conducted. It is anticipated that existing parking and other transportation facilities are adequate to accommodate the Project.

7.0 *INFRASTRUCTURE*

The Project will be served by the municipal water and sewer system currently serving the site. All connections will be constructed in accordance with Boston Water and Sewer Commission (BWSC) and Massachusetts Water Resources Authority (MWRA) requirements. There are no known capacity constraints, moratoriums, or other restrictions which would preclude utility connections for this Project.

Sanitary Sewer

The Project site is currently served by a 10-inch sewer line (BWSC) that starts in front of 16 Babbitt Street and flows east into an 18-inch sewer line (BWSC) on Cummington Street. There is also a 5-foot 6-inch sewer line (MWRA) and an 84-inch x 89-inch sewer line (Town of Brookline) that run along St. Mary's Street but do not directly serve the site.

Domestic waste water flows for the new building are estimated to generate approximately 10,910 gpd which reflects a net increase demand of approximately 6,410 gpd over the existing buildings which will be demolished on the site. The new building maximum flow is estimated to be 240 gallons per minute maximum flow or 0.53 cubic feet per second.

Storm Drainage

No significant changes to the existing site drainage patterns are anticipated due to the Project. It is expected that drainage efficiency will increase as a result of improvements to the drainage system which are part of the Project. The existing site is currently served by a 15-inch drain line (BWSC) that starts in front of 16 Babbitt Street and flows east to a 20-inch x 30-inch drain line. New stormwater piping and site drainage will be provided to meet the needs of the Project.

Water

The site is currently served from Babbitt Street by an 8-inch service line (BWSC) that branches off a 10-inch service line (BWSC) in St. Mary's Street. There is also a 10-inch private service line that runs along Cummington Street on the east side of the site.

The domestic water demand of the Project is expected to be higher than the sewer demand due to the added requirements of the cooling tower. The Project is estimated to require a net increase in water demand of 14,660 gpd. Maximum instantaneous demand is estimated to be 295 gallons per minute. The fire flow is estimated to be 1,000 gallons per minute maximum flow. Current flow data will need to be verified. Connections to the system will have to be made to provide fire and water service to the new Project building.

8.0 COMMUNITY BENEFITS

General Benefits

For over a century, Boston University has been an integral part of the City of Boston. Committed to an urban campus, it has consistently grown and contributed to the character and identity of city and served as a prominent economic stabilizing force. The University's national and international prestige significantly strengthens the City of Boston's national and international reputation. For example, in 1989, both President Bush and President Mitterand spoke at the University's commencement. In addition to being a significant employer in Boston, the University contributes to the well-being of the city and provides direct services to local community residences and businesses.

Economic and Employment Benefits

Benefits from Boston University which contribute to the Boston economy include employment, property taxes, federal grants, and acquisition of goods and services by the students, faculty and the administrative population. In fiscal year 1992, the University, its affiliates, and students expended over \$710 million. Of this amount, \$558.8 million was spent in direct expenditures

within the Commonwealth of Massachusetts. In addition, an estimated \$641.2 million in indirect expenditures was generated (based on economic factors from the U.S. Department of Commerce, Bureau of Economic Analysis), resulting in a total impact of \$1.2 billion in 1992 alone.

In 1992, Boston University directly employed over 21,500 people and indirectly created approximately 11,500 jobs, providing a total employment impact of close to 33,000 jobs. It was estimated that students alone brought in an additional \$129.7 million related to living expenses. The total direct and indirect economic impact from the University in 1992 was estimated to be \$396.2 million in the City of Boston.

In the 1992 fiscal year, Boston University employed approximately 2,900 Boston residents who earned more than \$58 million in salaries and wages. They used more than 4,500 city vendors of goods and services with direct expenditures of more than \$70 million. Student expenditures in the City of Boston totaled over \$74 million.

Municipal Services

As a major urban institution in the City of Boston, Boston University takes the responsibility of providing and augmenting major municipal services in and around its campus. It employs its own police and security forces 365 days a year, 24 hours per day to patrol the campus and surrounding neighborhoods. University police forces are also available for on-call back-up assistance to Boston Police, Brookline Police and State Police as necessary. They also assist the City of Boston in the issuance of parking tickets, which raised approximately \$50,000 in 1992.

The Boston University Physical Plant provides a variety of daily maintenance activities around campus. These activities include maintenance of sidewalks, streets, and MBTA platforms serving the campus. They also provide and maintain landscaping and perform rubbish and snow removal services. In 1992, these services were provided at a cost of over \$600,000. Rubbish removal services are provided for private rental housing properties in addition to properties owned and occupied by the University.

Scholarship Programs and Grants

The University annually provides hundreds of scholarships to residents of the Greater Boston community. The Boston Scholarship Program awards 58 full, four year scholarships to Boston High School graduates every year. This program, which is 20 years old, is the largest program of its kind in the United States. In 1992, over 350 scholarships worth close to \$5 million were awarded to Boston public high school graduates, Boston city employees, Boston public school teachers, Boston parochial school graduates, graduates of Bunker Hill and Roxbury Community Colleges, and families of fire fighters killed in the line of duty. Over the past ten years, almost \$1 million in aid has been designated for City of Boston employees. The cumulative value of such

scholarships since 1981 is over \$33 million. In addition, the University provides scholarships to residents of Chelsea and Brookline.

Boston University cultivates a significant amount of federal research dollars, student loans, and donations from outside the state. In the 1991-1992 academic year, the University brought approximately \$220 million to Boston in tuition and fees from outside the state. It also won \$60 million in federal research funding and brought in \$37.2 million in donations, \$31.5 million of which were from outside the state. Student loan activity associated with Boston University totaled almost \$35 million in the 1991-1992 academic year.

Project Benefits

The new Center for Photonics Research project is subject to Article 26A and 26B of the Boston Zoning Code which established linkage obligations for developers to off-set impacts of large scale development. Article 26A requires a payment toward low and moderate housing through the direct creation of housing or contribution to the Neighborhood Housing Trust. Similarly, Article 26B requires a contribution to the Neighborhood Jobs Trust for training of low and moderate income people, or creation of such jobs directly by the development. The Project will generate approximately \$750,000 in housing linkage funds and approximately \$150,000 in job linkage funds to the City of Boston. Furthermore, the Project will create approximately 250 construction jobs over a two year period.

In addition to these direct economic benefits, the new Center for Photonics Research project includes over \$8 million for new research over the initial three year period of the grant which is expected to provide a basis for obtaining \$8 to \$10 million per year of additional research and development funding after completion of the new facility. Furthermore, the Project will create excellent "incubator" facilities to new companies including small and minority businesses. By creating these facilities in Boston, it is hoped that one or two new companies will be created each year based upon new products developed at the Center, hence expanding a new economic base in the City of Boston.

The new Center for Photonics Research project will create other positive benefits to the neighborhood area. The Project will result in the revitalization of an unsightly "alley" adding to the vitality and safety of the area bordering the site. The Project includes landscaped areas with a new level sidewalk, providing important pedestrian and traffic safety improvements along the Babbitt Street block. The new building will be designed to provide pleasing views from the Massachusetts Turnpike and other viewpoints by replacing and enhancing the three current, different buildings.

9.0 *REGULATORY REVIEWS AND PERMITS*

Federal Approvals

The Center for Photonics Research is the result of a federal grant from the Department of Defense and therefore requires compliance with the National Environmental Protection Act (NEPA).

State Approvals

Private projects requiring state permits may be subject to state environmental review under the Massachusetts Environmental Policy Act (MEPA). Projects which require state permits and/or exceed stipulated size or impact thresholds are required to file an Environmental Notification Form (ENF) and, in some cases, an Environmental Impact Report (EIR). An ENF was filed for the new Center for Photonics Research on May 15, 1994. A decision on further reporting requirements required under MEPA is anticipated on or around July 1, 1994.

Other state approvals are limited to an Industrial User Permit from the Massachusetts Water Resources Authority and review by the Massachusetts Historical Commission.

City of Boston Approvals

While the Boston Zoning Code does not require the preparation of a Project Notification Form (PNF) or a Project Impact Report (PIR) for the new Center for Photonics Research because the Project site is not within the boundaries of the Article 31 review area, the University recognizes the importance of the City of Boston goals and interests embodied in Article 31 and the important urban location of the Project. Furthermore, the BRA has already approved a Master Plan for the Boston University Charles River Campus. Therefore, the University is voluntarily submitting a Project Notification Form in connection with the Project. The University is in the process of amending the Master Plan to reflect the Center for Photonics Research Project more completely. Two meetings have been held with the Boston University Task Force to discuss the Project. One meeting was held April 12, 1994 and the other was held May 11, 1994 when the Task Force voted to approve the Project and to recommend amending the Master Plan accordingly.

The Project will require zoning changes and will pursue a Planned Development Area (PDA) designation for the site pursuant to Section 3-1A(a) of the City of Boston Zoning Code. The PDA procedure was identified as the preferred zoning mechanism in the approved Charles River Campus Master Plan. The PDA designation will permit the development of the site in accordance with a development plan approved by the BRA. The Project will undergo BRA design review and Boston Civic Design Commission review.

Other approvals will be required from Boston Transportation Department and Boston Department of Public Works. The Project will also require Boston Water and Sewer Commission approvals for water and sewer connections and construction dewatering.

City of Brookline

The Project site directly abuts St. Mary's Street which is situated in Brookline. Construction activities will require coordination and related permits from the Brookline Public Works Department.

Anticipated approvals are summarized in the chart following this page.

FEDERAL AGENCY	APPROVAL
Department of Defense	NEPA Compliance

STATE AGENCY	APPROVAL
Executive Office of Environmental Affairs	MEPA Approval
Massachusetts Water Resources Authority	Industrial Use Discharge Permit
Massachusetts Historical Commission	Finding of No Adverse Effect

MUNICIPAL AGENCY	APPROVAL
Boston Redevelopment Authority	Approval of PDA/DIP Design Review Approval Zoning Recommendations
Boston Employment Commission	Construction Employment Plan
Boston Zoning Commission	Planned Development Area Designation
Boston Board of Appeal	Zoning Exceptions
Boston Fire Department	Fire Apparatus Access Approval Permit for Maintenance of Fire Protection Equipment
Boston Inspectional Services Department	Demolition Permit Building Permit Certificate of Occupancy
Boston Water and Sewer Commission	Sewer Connection Approval Water Connection Approval Construction Dewatering Discharge Permit
Boston Department of Public Works	Street Opening Permit Street Occupancy Permit Approval for sign, awning, hood, canopy or marquee
Boston Public Improvement Commission	Approval of Modifications to Curb
Boston Civic Design Commission	Design Review
Boston Transportation Dept.	Transportation Access Plan Agreement Construction Management Plan
Brookline Public Works Dept.	Street Opening Permit

